Raimund BÃ¼rger

List of Publications by Year
in descending order

139 papers	2,245 citations	257450 24 h-index	315739 38 g-index
145 all docs	145 docs citations	145 times ranked	992 citing authors

#	Article	IF	Citations
1	Strongly Degenerate Parabolic-Hyperbolic Systems Modeling Polydisperse Sedimentation with Compression. SIAM Journal on Applied Mathematics, 2003, 64, 41-80.	1.8	130
2	A consistent modelling methodology for secondary settling tanks in wastewater treatment. Water Research, 2011, 45, 2247-2260.	11.3	109
3	Sedimentation and Thickening. , 1999, , .		90
4	A Model of Continuous Sedimentation of Flocculated Suspensions in Clarifier-Thickener Units. SIAM Journal on Applied Mathematics, 2005, 65, 882-940.	1.8	89
5	A family of numerical schemes for kinematic flows with discontinuous flux. Journal of Engineering Mathematics, 2008, 60, 387-425.	1.2	79
6	Sedimentation and suspension flows: Historical perspective and some recent developments. Journal of Engineering Mathematics, 2001, 41, 101-116.	1.2	74
7	An Engquistâ€“Osher-Type Scheme for Conservation Laws with Discontinuous Flux Adapted to Flux Connections. SIAM Journal on Numerical Analysis, 2009, 47, 1684-1712.	2.3	73
8	Adaptive multiresolution WENO schemes for multi-species kinematic flow models. Journal of Computational Physics, 2007, 224, 1190-1222.	3.8	57
9	A consistent modelling methodology for secondary settling tanks: a reliable numerical method. Water Science and Technology, 2013, 68, 192-208.	2.5	55
10	A Century of Research in Sedimentation and Thickening. KONA Powder and Particle Journal, 2002, 20, 38-70.	1.7	51
11	Optimization of flocculation and settling parameters of tailings slurry by response surface methodology. Minerals Engineering, 2020, 156, 106488.	4.3	49
12	On reliable and unreliable numerical methods for the simulation of secondary settling tanks in wastewater treatment. Computers and Chemical Engineering, 2012, 41, 93-105.	3.8	47
13	Comparative analysis of phenomenological growth models applied to epidemic outbreaks. Mathematical Biosciences and Engineering, 2019, 16, 4250-4273.	1.9	39
14	A Stabilized Finite Volume Element Formulation for Sedimentation-Consolidation Processes. SIAM Journal of Scientific Computing, 2012, 34, B265-B289.	2.8	37
15	Linearly Implicit IMEX Runge--Kutta Methods for a Class of Degenerate Convection-Diffusion Problems. SIAM Journal of Scientific Computing, 2015, 37, B305-B331.	2.8	36
16	On models of polydisperse sedimentation with particle-size-specific hindered-settling factors. Applied Mathematical Modelling, 2009, 33, 1815-1835.	4.2	31
17	A multiresolution spaceâ€time adaptive scheme for the bidomain model in electrocardiology. Numerical Methods for Partial Differential Equations, 2010, 26, 1377-1404.	3.6	28
18	Applications of polydisperse sedimentation models. Chemical Engineering Journal, 2005, 111, 105-117.	12.7	26

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19	On the well-posedness of entropy solutions to conservation laws with a zero-flux boundary condition. Journal of Mathematical Analysis and Applications, 2007, 326, 108-120.	1.0	26
20	Effect of interparticle interactions on the yield stress of thickened flocculated copper mineral tailings slurry. Powder Technology, 2021, 392, 278-285.	4.2	26
21	Difference schemes, entropy solutions, and speedup impulse for an inhomogeneous kinematic traffic flow model. Networks and Heterogeneous Media, 2008, 3, 1-41.	1.1	26
22	On gravity and centrifugal settling of polydisperse suspensions forming compressible sediments. International Journal of Solids and Structures, 2003, 40, 4965-4987.	2.7	25
23	Mathematical model and numerical simulation of the dynamics of flocculated suspensions in clarifierâ€"thickeners. Chemical Engineering Journal, 2005, 111, 119-134.	12.7	25
24	On the implementation of WENO schemes for a class of polydisperse sedimentation models. Journal of Computational Physics, 2011, 230, 2322-2344.	3.8	25
25	Discontinuous finite volume element discretization for coupled flowâ€"transport problems arising in models of sedimentation. Journal of Computational Physics, 2015, 299, 446-471.	3.8	25
26	On constitutive functions for hindered settling velocity in 1-D settler models: Selection of appropriate model structure. Water Research, 2017, 110, 38-47.	11.3	25
27	Adaptive multiresolution schemes with local time stepping for two-dimensional degenerate reactionâ€"diffusion systems. Applied Numerical Mathematics, 2009, 59, 1668-1692.	2.1	24
28	Adaptive Multiresolution Methods for the Simulation ofÂWaves in Excitable Media. Journal of Scientific Computing, 2010, 43, 261-290.	2.3	24
29	Second-order schemes for conservation laws with discontinuous flux modelling clarifierâ€"thickener units. Numerische Mathematik, 2010, 116, 579-617.	1.9	23
30	Steady-state, control, and capacity calculations for flocculated suspensions in clarifierâ€"thickeners. International Journal of Mineral Processing, 2007, 84, 274-298.	2.6	22
31	Conservation laws with discontinuous flux: a short introduction. Journal of Engineering Mathematics, 2008, 60, 241-247.	1.2	22
32	Modeling and controlling clarifierâ€"thickeners fed by suspensions with time-dependent properties. Minerals Engineering, 2014, 62, 91-101.	4.3	22
33	Fully adaptive multiresolution schemes for strongly degenerate parabolic equations in one space dimension. ESAIM: Mathematical Modelling and Numerical Analysis, 2008, 42, 535-563.	1.9	21
34	Hyperbolicity Analysis of Polydisperse Sedimentation Models via a Secular Equation for the Flux Jacobian. SIAM Journal on Applied Mathematics, 2010, 70, 2186-2213.	1.8	20
35	On the Efficient Computation of Smoothness Indicators for a Class of WENO Reconstructions. Journal of Scientific Computing, 2019, 80, 1240-1263.	2.3	20
36	A semi-implicit monotone difference scheme for an initial-boundary value problem of a strongly degenerate parabolic equation modeling sedimentation-consolidation processes. Mathematics of Computation, 2005, 75, 91-113.	2.1	19

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37	A GENERALIZED KINETIC MODEL OF SEDIMENTATION OF POLYDISPERSE SUSPENSIONS WITH A CONTINUOUS PARTICLE SIZE DISTRIBUTION. Mathematical Models and Methods in Applied Sciences, 2008, 18, 1741-1785.	3.3	19
38	Convexity-preserving flux identification for scalar conservation laws modelling sedimentation. Inverse Problems, 2013, 29, 045008.	2.0	18
39	Simulations of reactive settling of activated sludge with a reduced biokinetic model. Computers and Chemical Engineering, 2016, 92, 216-229.	3.8	18
40	Advanced methods of flux identification for clarifierâ€“thickener simulation models. Minerals Engineering, 2014, 63, 2-15.	4.3	17
41	A hybrid stochastic Galerkin method for uncertainty quantification applied to a conservation law modelling a clarifierâ€thickener unit. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2014, 94, 793-817.	1.6	17
42	On a doubly nonlinear diffusion model of chemotaxis with prevention of overcrowding. Mathematical Methods in the Applied Sciences, 2009, 32, 1704-1737.	2.3	16
43	Regularized Nonlinear Solvers for IMEX Methods Applied to Diffusively Corrected Multispecies Kinematic Flow Models. SIAM Journal of Scientific Computing, 2013, 35, B751-B777.	2.8	16
44	Virtual element methods for the three-field formulation of time-dependent linear poroelasticity. Advances in Computational Mathematics, 2021, 47, 1.	1.6	16
45	On an extended clarifier-thickener model with singular source and sink terms. European Journal of Applied Mathematics, 2006, 17, 257-292.	2.9	15
46	A multilayer shallow water system for polydisperse sedimentation. Journal of Computational Physics, 2013, 238, 281-314.	3.8	15
47	Concentration-driven models revisited: towards a unified framework to model settling tanks in water resource recovery facilities. Water Science and Technology, 2017, 75, 539-551.	2.5	15
48	An Efficient Third-Order WENO Scheme with Unconditionally Optimal Accuracy. SIAM Journal of Scientific Computing, 2020, 42, A1028-A1051.	2.8	15
49	Fully adaptive multiresolution schemes for strongly degenerate parabolic equations with discontinuous flux. Journal of Engineering Mathematics, 2008, 60, 365-385.	1.2	14
50	On $H(div)$-conforming Methods for Double-diffusion Equations in Porous Media. SIAM Journal on Numerical Analysis, 2019, 57, 1318-1343.	2.3	14
51	Numerical solution of a spatio-temporal predator-prey model with infected prey. Mathematical Biosciences and Engineering, 2019, 16, 438-473.	1.9	14
52	On a Free Boundary Problem for a Strongly Degenerate Quasi-Linear Parabolic Equation with an Application to a Model of Pressure Filtration. SIAM Journal on Mathematical Analysis, 2002, 34, 611-635.	1.9	13
53	Discontinuous approximation of viscous two-phase flow in heterogeneous porous media. Journal of Computational Physics, 2016, 321, 126-150.	3.8	13
54	Numerical solution of a spatio-temporal gender-structured model for hantavirus infection in rodents. Mathematical Biosciences and Engineering, 2017, 15, 95-123.	1.9	13

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55	On mathematical models and numerical simulation of the fluidization of polydisperse suspensions. Applied Mathematical Modelling, 2005, 29, 159-193.	4.2	12
56	Closed-form and finite difference solutions to a population balance model of grinding mills. Journal of Engineering Mathematics, 2005, 51, 165-195.	1.2	12
57	On Riemann problems and front tracking for a model of sedimentation of polydisperse suspensions. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2007, 87, 665-691.	1.6	12
58	On linearly implicit IMEX Runge-Kutta methods for degenerate convection-diffusion problems modeling polydisperse sedimentation. Bulletin of the Brazilian Mathematical Society, 2016, 47, 171-185.	0.8	12
59	Computational uncertainty quantification for a clarifier-thickener model with several random perturbations: A hybrid stochastic Galerkin approach. Computers and Chemical Engineering, 2016, 89, 11-26.	3.8	12
60	A simulation model for settling tanks with varying cross-sectional area. Chemical Engineering Communications, 2017, 204, 1270-1281.	2.6	12
61	A population balance model of ball wear in grinding mills: An experimental case study. Minerals Engineering, 2018, 128, 288-293.	4.3	12
62	A finite volume scheme for cardiac propagation in media with isotropic conductivities. Mathematics and Computers in Simulation, 2010, 80, 1821-1840.	4.4	11
63	On an upwind difference scheme for strongly degenerate parabolic equations modelling the settling of suspensions in centrifuges and non-cylindrical vessels. Applied Numerical Mathematics, 2006, 56, 1397-1417.	2.1	10
64	On the settling of a bidisperse suspension with particles having different sizes and densities. Acta Mechanica, 2008, 201, 47-62.	2.1	10
65	Centrifugal Settling of Flocculated Suspensions: A Sensitivity Analysis of Parametric Model Functions. Drying Technology, 2010, 28, 858-870.	3.1	10
66	WENO Reconstructions of Unconditionally Optimal High Order. SIAM Journal on Numerical Analysis, 2019, 57, 2760-2784.	2.3	10
67	Modelling the spatial-temporal progression of the 2009 A/H1N1 influenza pandemic in Chile. Mathematical Biosciences and Engineering, 2016, 13, 43-65.	1.9	10
68	Monotone difference schemes stabilized by discrete mollification for strongly degenerate parabolic equations. Numerical Methods for Partial Differential Equations, 2012, 28, 38-62.	3.6	9
69	Stability analysis and finite volume element discretization for delay-driven spatio-temporal patterns in a predatorâ€“prey model. Mathematics and Computers in Simulation, 2017, 132, 28-52.	4.4	9
70	Central WENO Schemes Through a Global Average Weight. Journal of Scientific Computing, 2019, 78, 499-530.	2.3	9
71	Simulation and control of dissolved air flotation and column froth flotation with simultaneous sedimentation. Water Science and Technology, 2020, 81, 1723-1732.	2.5	9
72	Implicit-Explicit Methods for a Convection-Diffusion-Reaction Model of the Propagation of Forest Fires. Mathematics, 2020, 8, 1034.	2.2	9

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73	Neumann Problems for Quasi-linear Parabolic Systems Modeling Polydisperse Suspensions. SIAM Journal on Mathematical Analysis, 2006, 38, 557-573.	1.9	8
74	Numerical simulation of clarifier-thickener units treating ideal suspensions with a flux density function having two inflection points. Mathematical and Computer Modelling, 2006, 44, 255-275.	2.0	8
75	Antidiffusive and Random-Sampling Lagrangian-Remap Schemes for the Multiclass Lighthill--Whitham--Richards Traffic Model. SIAM Journal of Scientific Computing, 2013, 35, B1341-B1368.	2.8	8
76	Approximate Laxâ€"Wendroff discontinuous Galerkin methods for hyperbolic conservation laws. Computers and Mathematics With Applications, 2017, 74, 1288-1310.	2.7	8
77	A difference scheme for a degenerating convection-diffusion-reaction system modelling continuous sedimentation. ESAIM: Mathematical Modelling and Numerical Analysis, 2018, 52, 365-392.	1.9	8
78	Estimating the hindered-settling flux function from a batch test in a cone. Chemical Engineering Science, 2018, 192, 244-253.	3.8	8
79	Flux identification of scalar conservation laws from sedimentation in a cone. IMA Journal of Applied Mathematics, 2018, 83, 526-552.	1.6	8
80	Implicit-explicit methods for a class of nonlinear nonlocal gradient flow equations modelling collective behaviour. Applied Numerical Mathematics, 2019, 144, 234-252.	2.1	8
81	Measuring differences between phenomenological growth models applied to epidemiology. Mathematical Biosciences, 2021, 334, 108558.	1.9	8
82	On some difference schemes and entropy conditions for a class of multi-species kinematic flow models with discontinuous flux. Networks and Heterogeneous Media, 2010, 5, 461-485.	1.1	8
83	An investigation of spatial-temporal patterns and predictions of the coronavirus 2019 pandemic in Colombia, 2020â€"2021. PLoS Neglected Tropical Diseases, 2022, 16, e0010228.	3.0	8
84	Analysis of sedimentation biodetectors. Chemical Engineering Science, 2005, 60, 2585-2598.	3.8	7
85	Multiresolution schemes for strongly degenerate parabolic equations in one space dimension. Numerical Methods for Partial Differential Equations, 2007, 23, 706-730.	3.6	7
86	Coupling of Discontinuous Galerkin Schemes for Viscous Flow in Porous Media with Adsorption. SIAM Journal of Scientific Computing, 2018, 40, B637-B662.	2.8	7
87	A system of conservation laws with discontinuous flux modelling flotation with sedimentation. IMA Journal of Applied Mathematics, 2019, 84, 930-973.	1.6	7
88	Entropy Solutions of a Scalar Conservation Law Modeling Sedimentation in Vessels With Varying Cross-Sectional Area. SIAM Journal on Applied Mathematics, 2017, 77, 789-811.	1.8	6
89	Computational uncertainty quantification for some strongly degenerate parabolic convectionâ€"diffusion equations. Journal of Computational and Applied Mathematics, 2019, 348, 490-508.	2.0	6
90	A method-of-lines formulation for a model of reactive settling in tanks with varying cross-sectional area. IMA Journal of Applied Mathematics, 2021, 86, 514-546.	1.6	6

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91	A conservation law with multiply discontinuous flux modelling a flotation column. Networks and Heterogeneous Media, 2018, 13, 339-371.	1.1	6
92	A Diffusively Corrected Multiclass Lighthill-Whitham-Richards Traffic Model with Anticipation Lengths and Reaction Times. Advances in Applied Mathematics and Mechanics, 2013, 5, 728-758.	1.2	6
93	Spectral WENO schemes with Adaptive Mesh Refinement for models of polydisperse sedimentation. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2013, 93, 373-386.	1.6	5
94	Efficient parameter estimation in a macroscopic traffic flow model by discrete mollification. Transportmetrica A: Transport Science, 2015, 11, 702-715.	2.0	5
95	Numerical solution of a multi-class model for batch settling in water resource recovery facilities. Applied Mathematical Modelling, 2017, 49, 415-436.	4.2	5
96	A random sampling method for a family of Temple-class systems of conservation laws. Numerische Mathematik, 2018, 138, 37-73.	1.9	5
97	A dynamic multilayer shallow water model for polydisperse sedimentation. ESAIM: Mathematical Modelling and Numerical Analysis, 2019, 53, 1391-1432.	1.9	5
98	A Population Balance Model for Shear-Induced Polymer-Bridging Flocculation of Total Tailings. Minerals (Basel, Switzerland), 2022, 12, 40.	2.0	5
99	Centrifugal Settling of Polydisperse Suspensions with a Continuous Particle Size Distribution: A Generalized Kinetic Description. Drying Technology, 2008, 26, 1024-1034.	3.1	4
100	Linearly implicit-explicit schemes for the equilibrium dispersive model of chromatography. Applied Mathematics and Computation, 2018, 317, 172-186.	2.2	4
101	Implicitâ€"explicit schemes for nonlinear nonlocal equations with a gradient flow structure in one space dimension. Numerical Methods for Partial Differential Equations, 2019, 35, 1008-1034.	3.6	4
102	On approximate implicit Taylor methods for ordinary differential equations. Computational and Applied Mathematics, 2020, 39, 1.	2.2	4
103	Exploring a Convectionâ€"Diffusionâ€"Reaction Model of the Propagation of Forest Fires: Computation of Risk Maps for Heterogeneous Environments. Mathematics, 2020, 8, 1674.	2.2	4
104	A multiclass Lighthill-Whitham-Richards traffic model with a discontinuous velocity function. Networks and Heterogeneous Media, 2021, 16, 187.	1.1	4
105	A moving-boundary model of reactive settling in wastewater treatment. PartÂ1: Governing equations. Applied Mathematical Modelling, 2022, 106, 390-401.	4.2	4
106	Optimization of Parameters for Rheological Properties and Strength of Cemented Paste Backfill Blended with Coarse Aggregates. Minerals (Basel, Switzerland), 2022, 12, 374.	2.0	4
107	On the hyperbolicity of certain models of polydisperse sedimentation. Mathematical Methods in the Applied Sciences, 2012, 35, 723-744.	2.3	3
108	Antidiffusive <scp>L</scp>agrangianâ€remap schemes for models of polydisperse sedimentation. Numerical Methods for Partial Differential Equations, 2016, 32, 1109-1136.	3.6	3

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109	Flotation with sedimentation: Steady states and numerical simulation of transient operation. Minerals Engineering, 2020, 157, 106419.	4.3	3
110	Convergence of H(div)-conforming schemes for a new model of sedimentation in circular clarifiers with a rotating rake. Computer Methods in Applied Mechanics and Engineering, 2020, 367, 113130.	6.6	3
111	Second-order schemes for axisymmetric Navierâ€“Stokesâ€“Brinkman and transport equations modelling water filters. Numerische Mathematik, 2021, 147, 431-479.	1.9	3
112	Three-level order-adaptive weighted essentially non-oscillatory schemes. Results in Applied Mathematics, 2021, 12, 100217.	1.3	3
113	A moving-boundary model of reactive settling in wastewater treatment. PartÂ2: Numerical scheme. Applied Mathematical Modelling, 2022, 111, 247-269.	4.2	3
114	Towards Improved 1-D Settler Modelling: Calibration of the BÃ¼rger Model and Case Study. Proceedings of the Water Environment Federation, 2013, 2013, 3953-3969.	0.0	2
115	Polynomial viscosity methods for multispecies kinematic flow models. Numerical Methods for Partial Differential Equations, 2016, 32, 1265-1288.	3.6	2
116	On entropy stable schemes for degenerate parabolic multispecies kinematic flow models. Numerical Methods for Partial Differential Equations, 2019, 35, 1847-1872.	3.6	2
117	A Multiresolution Method for the Simulation of Sedimentation-Consolidation Processes. , 2006, , 387-395.		2
118	Adaptive Multiresolution Simulation of Waves in Electrocardiology. , 2010, , 199-207.		2
119	A STABILITY AND SENSITIVITY ANALYSIS OF PARAMETRIC FUNCTIONS IN A SEDIMENTATION MODEL. DYNA (Colombia), 2014, 81, 22.	0.4	2
120	Uncertainty Quantification for a Clarifierâ€“Thickener Model with Random Feed. Springer Proceedings in Mathematics, 2011, , 195-203.	0.5	2
121	Numerical analysis of a three-species chemotaxis model. Computers and Mathematics With Applications, 2020, 80, 183-203.	2.7	1
122	Mathematical Models for the Sedimentation of Suspensions. , 2006, , 7-44.		1
123	Well-posedness and Travelling Wave Analysis for a Strongly Degenerate Parabolic Aggregation Equation. Series in Contemporary Applied Mathematics, 2012, , 312-319.	0.8	1
124	Implicit-Explicit Methods for the Efficient Simulation of the Settling of Dispersions of Droplets and Colloidal Particles. Advances in Applied Mathematics and Mechanics, 2018, 10, 445-467.	1.2	1
125	Study of steel ball recharge and consumption in a wet cement industrial mill via a population balance model. Particulate Science and Technology, 2022, 40, 972-979.	2.1	1
126	On entropy solutions for an inhomogeneous kinematic traffic model. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1041801-1041802.	0.2	0

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127	Numerical schemes for kinematic flows with discontinuous flux. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 2040029-2040030.	0.2	0
128	Multiresolution schemes for an extended clarifierâ€thickener model. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1041803-1041804.	0.2	0
129	Adaptive multiresolution schemes for reaction-diffusion systems. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10969-10970.	0.2	0
130	A finite volume element method for simulating secondary settling tanks. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 667-668.	0.2	0
131	Editorial: ZAMM 6-7 / 2013. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2013, 93, 372-372.	1.6	0
132	On time discretizations for the simulation of the batch settlingâ€"compression process in one dimension. Water Science and Technology, 2016, 73, 1010-1017.	2.5	0
133	A discontinuous method for oilâ€water flow in heterogeneous porous media. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 763-764.	0.2	0
134	On second-order antidiffusive Lagrangian-remap schemes for multispecies kinematic flow models. Bulletin of the Brazilian Mathematical Society, 2016, 47, 187-200.	0.8	0
135	Discontinuous approximation of flow in porous media with adsorption. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800064.	0.2	0
136	A Multilayer Shallow Water Approach for PolydisperseÂSedimentation with Sediment Compressibility and Mixture Viscosity. Journal of Scientific Computing, 2020, 85, 1.	2.3	0
137	Mixed-type systems of convection-diffusion equations modeling polydisperse sedimentation. Lecture Notes in Applied and Computational Mechanics, 2003, , 257-262.	2.2	0
138	Recent advances in conservation laws with discontinuous flux and clarifier-thickener models. Lecture Notes in Applied and Computational Mechanics, 2003, , 137-142.	2.2	0
139	Hybrid Stochastic Galerkin Finite Volumes for the Diffusively Corrected Lighthill-Whitham-Richards Traffic Model. Springer Proceedings in Mathematics and Statistics, 2017, , 189-197.	0.2	0